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1. William G. Tyler
2.

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This paper examines the recent experience of Brazil with stabilization from high rates of inflation, focusing on the so-called *Plano Real*, which was initiated in July 1994. Prior to 1994, the extension of indexation throughout the economy had made stabilization much more complicated than in an economy without widespread indexation. Previous attempts at stabilization failed to address the underlying fiscal imbalance and to de-index the economy. The experience with *Plano Real* has been encouraging, although serious questions remain about the sustainability of the resultant low inflation rates. The Achilles heel of the program has been the underachievement of fiscal goals, with delays in implementation of several fiscal reforms. The 1997-99 currency crisis in Brazil was not the result of some sinister vagaries of international financial markets; it was home grown. Serious, and growing, macroeconomic imbalance existed at the outset of the crisis. The Government's macroeconomic policy stance, as represented by unsustainable fiscal and debt policies, was correctly perceived as unsustainable by market participants and viewed as unlikely to be rectified in the near term. That perception, and not contagion or herding behavior, was the cause. Once the rush was on however, herding behavior took over and it became a stampede. The evidence suggests that the Brazilian authorities defended the exchange rate for too long. The economic costs of this policy, both in terms of the loss of reserves and potential GDP, were high. Moreover, the economic ill effects of letting the exchange rate float have been exaggerated.

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The Pursuit of Monetary Policies under the Transition from High Inflation to Stabilization: The Experience of Brazil

by

William G. Tyler [*]

Abstract

This paper examines the recent experience of Brazil with stabilization from high rates of inflation, focusing on the so-called *Plano Real*, which was initiated in July 1994. In years prior to 1994, the extension of indexation throughout the economy had made stabilization and dealing with inertial inflation much more complicated than in an economy without widespread indexation. Previous attempts at stabilization failed because they failed to address the underlying fiscal imbalance and successfully de-index the economy. The experience with the *Plano Real* has been encouraging, although serious questions remain about the sustainability of the resultant low inflation rates. The Achilles heel of the program has been, and remains, the underachievement of the fiscal goals, with delays in the implementation of a number of fiscal reforms.

The 1997-99 currency crisis in Brazil was not the result of some sinister vagaries of international financial markets; it was home grown in its origins. Serious, and growing, macroeconomic imbalance existed at the outset of the crisis. The Government's macroeconomic policy stance, as represented by unsustainable fiscal and debt policies, was indeed correctly perceived as unsustainable by market participants and viewed as unlikely to be rectified in the near term. That perception, and not contagion or herding behavior, was the cause. Once the rush was on however, herding behavior took over and it became a stampede. With some benefit of hindsight, the evidence suggests that the Brazilian authorities defended the exchange rate for too long. The economic costs of this policy, both in terms of the loss of reserves and potential GDP, were high. Moreover, the economic ill effects of letting the exchange rate float have been exaggerated.

[*] Economic Advisor, Bank Indonesia, Partnership for Economic Growth (PEG) Project. PEG is a USAID-funded Project with the Government of Indonesia. The views expressed in this report are those of the author and not necessarily those of USAID, the U.S. Government or the Government of Indonesia.

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I. Introduction

The economic history of Brazil has been interspersed with inflationary episodes. Over the past fifty years seemingly endemic inflation has been a major factor in Brazilian economic life. Periods of both high growth and high inflation have occurred, sometimes seemingly unrelated. Brazilian policy-makers innovated in the introduction and use of indexation as a means to ameliorate some of the ill effects of inflation without addressing its underlying causes. The extension of indexation throughout the economy itself created difficulties, made stabilization more complicated and was eventually – after a few false starts - substantially curtailed. Breaking the momentum of what, based upon the Brazilian experience, has become known as *inertial inflation* has occupied policy-makers in recent years in Brazil. While the experience so far with the latest stabilization program – initiated in 1994 and termed the *Plano Real* – has been encouraging, questions still remain about the sustainability of the resultant low inflation. This paper, presented in a largely descriptive fashion, addresses some of those issues.

The organization of the paper is as follows. The next section presents an overview of recent economic and monetary developments in Brazil, with a focus on the policies pursued by the successive governments. The *Plano Real* is specifically treated. Section III provides a discussion of institutional arrangements in the conduct of monetary policies, particularly with respect to the changing role of the central bank. This is followed, in Section IV, by an examination of the 1998-99 currency crisis in Brazil. Final sections discuss the recent adoption of inflation targeting in Brazil and present some concluding remarks.

II. Overview of Monetary Policies, the Macroeconomic Framework and Economic Performance

The 1950s was a period of considerable economic expansion and growing inflationary pressures. During the second half of the decade, the Government of

[*] Economic Advisor, Bank Indonesia. The author is grateful for the financial support provided by PEG/USAID and for helpful suggestions and comments from Charles Joseph, Milton Assis, Maria Conceição da Silva, and Thomas Timberg. The normal caveats apply.

President Juscelino Kubitschek pursued a highly expansionary fiscal policy stance, encompassing an ambitious public investment program, which *inter alia* increased the provision of electric energy, improved the road transportation network, and went far in modernizing the country's infrastructure. The new capital city of Brasília was hastily constructed during the Kubitschek administration. These expenditures were significantly financed by domestic monetary and credit expansion. More, and additional, populist policies were pursued with worsening economic results until a military takeover occurred in 1964. The new Government implemented a rather conventional stabilization program, which emphasized fiscal responsibility and monetary restraint. The results of this program were to bring inflation under control and to subsequently initiate a renewed and long period of economic expansion.

While inflation during the late 1960s was relatively low, it was still greater than international levels. Large devaluations in 1964 and 1967 were disruptive, and policy-makers searched for ways to overcome the distortions emanating from increasing currency overvaluation while, at the same time, avoiding the economic and political turmoil associated with sizable changes in the exchange rate peg. Accordingly, a system of a crawling peg was introduced – termed in Brazil the "mini-devaluation" policy. The idea, quite innovative at the time, was to have the price of foreign exchange (i.e., the dollar) changed frequently so as to reflect changes in the domestic price level. The changes in the adjustable peg were implemented at frequent, but unannounced, intervals, averaging initially about every three weeks.

This system, involving as it did an indexation of the currency unit, was the beginning of a more general system of indexation, which was extended gradually over a number of years. Extensions first occurred to housing loans and then to other financial instruments, including, importantly, government bonds. "Monetary correction" factors, mirroring a price index, were introduced into financial contracts. Such indexation was then extended to labor markets and to goods markets. The last prices to be indexed were generally public sector provided goods and services, such as highly politically charged public utilities prices. The extension of indexation coincided with the gradual demise of "money illusion," expanded economic and financial acumen on the part of economic agents, and a marked increase in inflationary expectations. The problem of course is that with the attempt to index everything, the pricing system breaks down. There has to be a *numeraire*, and changes in relative prices must be allowed in every healthy economy.

During the 1970s, however, and prior to the generalization of indexation, this policy-making pragmatism served the country well. The economy continued high rates of growth, averaging nearly 9 percent annually during the 1970s. (Table 1) Exports, whose competitiveness was protected by the 'mini-devaluation" policy, demonstrated considerable vigor, growing at an average of more than 10 percent annually. Manufactured exports grew especially fast, and the country emerged as an important industrial exporter in a number of subsectors (e.g., shoes, food products). Economic growth was spurred by high rates of domestic investment, which was facilitated by high levels of external borrowing, as reflected in the significant current account deficits. (Table 1) During the decade Brazil's external debt increased by over one thousand percent, with total external indebtedness amounting to US$71.5 billion, or roughly 29 percent of GDP by 1980, just before the debt crisis. Borrowing abroad had also permitted the Government to finance its public sector debt in a

relatively non-inflationary manner, at least initially. Inflation, rose gradually throughout the decade, reflecting accommodative monetary policies, an inability on the part of the Government to impose greater fiscal discipline, creeping indexation and the adverse shocks of the two petroleum crises (in 1973 and 1979).

Table 1
Macroeconomic Indicators, 1970-99 (%)

	Annual Average Growth (%)				*Current Account* [a]	*Public Sector* [b]
Year	*GDP*	*GDP Implicit Deflator*	*Exports of Goods & Services*	*Gross Domestic Investment*	*Bal/GDP (%)*	*Bal/GDP (%)*
1970-80	8.6	40.9	10.2	10.0	- 4.4	n.a.
1980-90	2.8	284.5	7.5	- 1.5	- 1.6	n.a.
1990-97	3.1	475.2	6.0	2.4	- 1.3	n.a.
1993	4.9	1996.2	10.2	5.0	- 0.8	- 9.3
1994	5.9	2240.2	7.7	6.8	- 0.9	n.a.
1995	4.2	77.6	- 1.4	12.1	- 2.8	- 7.2
1996	2.8	17.3	6.1	- 0.2	- 4.4	- 5.9
1997	3.7	7.4	6.1	- 0.2	- 4.4	- 6.1
1998	0.1	3.9	1.8	6.2	- 4.5	- 8.0
1999 (frcst)	0.0	8.0	--	--	--	--

Notes:
a. The current account balance in the balance of payments is expressed as a percentage, with a minus sign indicating a deficit.
b. The public sector fiscal deficit is for the combined public sector. A minus sign indicates a deficit.
Sources: Central Bank of Brazil, IBGE, IPEA, and World Bank, *World Development Indicators*, CD-ROM version.

The debt crisis beginning in 1981-82 effectively cut off Brazil's access to international financial markets for new net borrowing. As reflected in Table 1, the large current account deficits could now longer be readily financed, and the ensuing economic adjustment resulted in constrained investment and slow growth throughout the 1980s. Inflation however – again reflecting the stance of expansionary monetary and fiscal policies plus increasingly generalized indexation - increased. This general posture of policies, circumstances and events continued into the 1990s.

The general stance of monetary - and to a certain extent, fiscal - policies can be seen by an examination over time of the monetary aggregate growth rates, as presented in Table 2. Both base money and narrow money (M1) grew at very high rates of growth during the 1980s. The income velocity of money increased substantially as economic agents economized on the use of money and reduced their real balances. Broad money, on the other hand, includes an indexed component, i.e., government bonds and securities held by the public. It grew even more rapidly than narrow money during the 1980s, reflecting both an expansionary fiscal posture of the public sector (which financed its deficits through debt placements) and a willingness of the public to hold indexed government securities. Economic agents increasingly chose to keep their liquid balances in such securities. These securities were highly

liquid – with a well-developed overnight market – and increasingly remunerative as the decade wore on and the risks became more apparent.

Table 2
Money Aggregates and Monetary Indicators,[a] 1980-98 (%)

Year	Annual Rate of Change			Rate of Inflation[d] (%)
	Base Money	M1[b]	M2[c]	
1980-90	364.3	323.1	566.6	427.6
1990	2,304.2	2,335.7	313.3	1,476.6
1991	291.2	330.7	472.4	480.2
1992	991.3	896.5	2,052.9	1,158.0
1993	1,953.2	2,117.5	3,005.4	2,708.6
1994	3,322.5	2,556.7	1,242.3	1,093.8
1995	22.6	23.4	47.7	14.8
1996	-8.7	4.6	55.6	9.3
1997	60.8	60.1	21.7	7.5
1998	23.1	5.9	24.4	1.7

Notes:

a. All rates of change, including that of the price index, are calculated as end-of-year estimates, i.e., December to December. Since the implicit GDP deflator is calculated as an average for the year, some differences exist between the two measures of annual nflation.
b. Base Money plus demand deposits.
c. M1 plus federal, state and municipal government securities held by the public.
d. As measured by IBGE's General Price Index for Domestic Availability (IGP-DI).

Sources: Central Bank of Brazil, IBGE, IPEA, and World Bank, *World Development Indicators*, CD-ROM version.

The acceleration of inflation during the 1980s and early 1990s prompted numerous attempts at stabilization. These programs, none of which staunched inflation more than temporarily, included a wide variety of measures, frequently of a heterodox nature. The list includes such measures as the imposition of price controls, price freezes (including of consumer prices, public utilities, and the exchange rate), wage freezes, delays in adjusting public sector prices, unabashed tinkering with the prices indices on which indexation was based, half-hearted efforts to scale down the extent of indexation, debt moratoria, and, finally, with the Collor Plan in 1990, partial effective confiscation of the government's domestic debt in the hands of the public. The major element missing from all these programs was concerted and significant fiscal discipline on the part of the government in order to reduce its borrowing requirements.

Possibly the best planned and most successful of these failed stabilization plans was the *Plano Cruzado* of 1986. Efforts were made to break inflationary expectations and remove inflationary inertia by partial deindexation, the introduction of a new currency unit (the *cruzado*), and a price and wage freeze. Inflation did slow for a time, but the underlying essential ingredient for success was missing – the prerequisite fiscal adjustment. Policy-makers interpreted the reduction of inflation as

success and became complacent in undertaking the fiscal measures, originally intended as part of the program.

After the collapse of the Collor Plan, and indeed of the Collor Government (upon the impeachment of President Collor), in 1991, no major new anti-inflationary efforts were made until the mid-1990s. Indeed, the country drifted into hyperinflation, with annual rates of inflation in excess of one thousand percent in 1992, 1993 and 1994. Monetary expansion continued unabated, and the issuance of government securities to finance the public sector's borrowing requirements can only be described as massive. (Table 2) After some significant economic liberalization initiated by the Collor Administration (notably in trade policies, deregulation, scaling down of public sector interventions, privatization, etc.), economic policy under the Government of President Itamar Franco drifted; the momentum of economic reform was lost. The single, and major, exception was the planning and subsequent implementation the so-called *Plano Real.*

The *Plano Real*

After a transition period, during which the new currency unit (the *real*) co-existed with the previous unit, the *Plano Real* was formally initiated in July 1994. The program used the exchange rate as a nominal anchor, effectively undoing the *de facto* indexation of the exchange rate that existed – except for during periodic stabilization attempts (e.g., the *Plano Cruzado*) – since the late 1960s. This was accompanied by the systematic dismantling of indexation in other areas, e.g., labor markets, goods markets, and for many financial instruments. Launched with an ambitious public relations campaign, the program was an immediate success, with some nominal appreciation of the new *real*-dollar exchange rate even occurring. Tables 1 and 2 show the evolution of the major macroeconomic indicators since the initiation of the *Plano Real.* Inflation fell precipitously, although it took several years to approach international levels. In 1998 inflation, as measured by the general price index, was less than 2 percent. The expansion of base money and narrow money also fell dramatically. Growth, however, despite some recovery in investment activity and a brief economic recovery in 1995, has been disappointing.

With the breaking of inflationary expectations and the reduction of inflation, the *Plano Real* was, especially in the beginning, enormously popular.[1] In view of the plan's evident success in bringing down inflation, the question arises as to why this particular plan has been successful while others have failed. In other words, what distinguishes the *Plano Real* from its predecessors? Related to the point that it remains largely in tact and has not yet failed, there is the fact of the simple passage of time. In essence it has endured now for more than five years. Also, unlike the earlier

[1] Indeed, on the basis such popularity, Fernando Henrique Cardoso, the Minister of Finance responsible for the *Plano Real*, was elected President in late 1994. He was reelected in 1998. With the reduction in inflation between 1994 and 1996, it has been estimated, on the basis of comparable IBGE surveys for six metropolitan areas, that the percentage of the population living beneath the poverty line decreased by 23 percent. Using broader household surveys (PNAD), the percentage of the Brazilian population living in poverty was estimated to have dropped from 30.4% in 1993 to 20.6% in 1995 and to 20.9% in 1997. The comparable percentages for 1970 and 1980 were 68.3% and 35.3%. (Rocha, 1996, 1999)

plans, it has made de-indexation stick, with the major of some types of government securities and instruments.

Perhaps the most important reason for the success of the *Plano Real* is that it has been grounded in the recognition, at least, of the need to pursue some far greater degree of orthodoxy in monetary and fiscal policies. This monetary restraint can be seen in Table 2. This has been facilitated by greater effective responsibility and independence given to the central bank for using monetary policy to control inflation (as discussed below). At the same time, the Government has widely publicized and discussed the need for fiscal reform. This recognition is in marked contrast to that seriously articulated by previous Governments. It has launched a number of initiatives seeking to either curtail expenditures (at all levels of government) or enhance revenues. Importantly, the Government has tried to address some of the structural issues related to the fiscal sector. It has limited the financial autonomy of the states, moved to impede their borrowing ability, linked some fiscal transfers to the states' fiscal performance, and enacted legislation for public sector administrative reform. Critical Government initiatives have been introduced for legislative approval, including: (a) social security and pension reform; (b) a law to impose greater fiscal responsibility and discipline upon the states and municipal governments, as well as on federal government entities; and (c) tax reform, involving a consolidation of a number of taxes and the streamlining the value added tax system. These important initiatives, as of August 1999, still await legislative approval and enactment.

Despite these initiatives and the clear recognition of government officials of the importance of establishing fiscal control and reducing the public sector deficit, there has been so far only limited success in bringing about serious fiscal reform in Brazil. This has been indeed the Achilles heel of the *Plano Real* and indeed may yet lead to ultimate failure in keeping inflation low. Such concern can clearly be deduced from the fiscal performance data and macroeconomic indicators. Table 3 shows a breakdown in the public sector deficit and borrowing requirements for recent post-*Plano Real* years. High deficits continue to exist and contribute to the continuing high (recently greater than 4 percent of GDP) current account deficits in the balance of payments. The public sector borrowing requirements (PSBR) for 1998 amounted to 8.0 percent of GDP; the primary balance – after deducting interest payments – was a small surplus of 0.01 percent of GDP.[2] Table 4 presents a desaggregation of this primary surplus; it is representative of other years as well. The country's major fiscal problem lies not so much with the federal government *per se*. The social security system – administered formally by a federal government institution – constitutes a major drain on public fiscal resources, as do state governments and public enterprises. Ultimately, the central government's ability top impose control and fiscal discipline on the social security system, the subnational governments and public enterprises may well determine the ultimate success of continued price (as initiated under the *Plano Real)* and the present Government's quest to modernize the country.

[2] Table 3 also shows that the primary surplus target for 1999 amounts to 3.1 percent of GDP. This target, if achieved, will represent a substantial fiscal adjustment. As of the end of first quarter of 1999, it was being met. This may be partly the result, however, of some short-term, patchwork policies involving the introduction of so-called "tax handles," such as the extension of a temporary and distortionary financial transactions tax.

Table 3
Fiscal Performance and Public Sector Borrowing Requirements, 1995-99
(% of GDP)

Year	*Primary Balance* [a]	*Interest* [b]	*Nominal Deficit*
1995	0.4	7.6	7.2
1996	- 0.1	5.8	5.9
1997	- 0.9	5.2	6.1
1998	0.01	8.02	8.01
1999 Target	3.1	--	--

Notes:
a. A primary deficit is indicated by a minus.
b. Interest on external debt and real portion of domestic debt interest.
Source: IPEA, *Boletim de Finanças Públicas*, Março 1999.

Table 4
Composition of Fiscal Primary Surplus in 1998
(% of GDP)

Government Category/Level	*1998*
Central Government:	
Federal Government & Central Bank	1.35
INSS (Social Security)	- 0.79
Federal Public Enterprises	- 0.25
Subtotal	0.31
Regional Governments:	- 0.30
State Governments	- 0.41
Municipal Governments	0.22
State Public Enterprises	- 0.07
Municipal Public Enterprises	- 0.04
Subtotal	- 0.30
Total Primary Surplus	0.01

Source: Banco Central do Brasil and BNDES.

With the persistent and large PSBR, government debt has continued to grow, constituting constraints on debt and interest rate management and a substantial burden of future generations. Between 1996 and 1998 the total net public sector debt grew from 33 percent to 51 percent of GDP.[3] Such a tendency is not sustainable. Table 5 shows that the stock of outstanding domestic federal debt obligations has been growing at rates in excess of 40 percent in real terms over the past several years. Crowding out the private sector continues, with low rates of credit expansion to the

[3] Computed from information from the *Boletim do Banco Central do Brasil*, various issues.

private sector.[4] A similar story of growing public sector indebtedness can be discerned from the growth of M2, as presented in Table 6. While one is tempted to conclude that M2's growth as a percentage of GDP represents a financial deepening and a positive reflection of the *Plano Real*, one must recall that M2 contains indexed public sector securities held by the public. On the other hand, the growth of base money and narrow money (M1) as percentages of GDP, also shown in Table 6, demonstrate remonetization of the economy and a reduction of money velocity, following successful monetary stabilization.

Table 5
Outstanding Domestic Federal Debt Obligations, 1993-99 [a]

Year	*Total (R$ billions)*	*Growth Rates for Prior 12 Month Period (%)*	
		Nominal	*Real [b]*
1993	11,632	2,535	- 10.7
1994	59,417	410	- 50.8
1995	84,596	42.7	24.0
1996	114,775	35.2	24.2
1997	225,732	96.7	83.6
1998	343,820	55.9	49.5
1999 (May)	421,408	52.5	40.3

Notes:
a. End of period stock information is provided.
b. Real growth is calculated based upon deflation with the General Price Index (IGP-DI).
Source: Boletim do Banco Central do Brasil, various issues.

Table 6
Indicators of Financial Deepening and the Income Velocity of Money
(expressed as %'s of GDP)

Year	*Base Money*	*Narrow Money (M1)*	*Broad Money (M2)*
1970-80 (ave)	--	14.6	16.5
1980-90 (ave)	--	8.7	20.9
1994	3.4	4.3	13.9
1995	3.2	4.2	15.7
1996	2.4	3.2	20.6
1997	3.6	5.3	22.6
1998	4.3	5.5	27.6

Source: Banco Central do Brasil.

[4] The nominal growth rates for financial system loans to the private sector have been as follows:

1995	21.8%
1996	9.8
1997	1.4
1998	3.1

Source: Banco Central do Brasil.

A positive, related reflection of the stabilization program, as well as earlier financial sector liberalization, is an increased soundness in the banking sector. A recent study by Fernando Puga presents convincing empirical evidence that by December 1998 the position of national private banks in Brazil was less vulnerable than at the beginning of the *Plano Real*.[5] In addition, a number of problematic state banks have been privatized, and the ratio of non-performing loans of the banking system was heavily concentrated in the hands of public sector banks. Following liberalization and the *Plano Real,* the number of banks has grown, including that of foreign banks, and the efficiency of the financial system has improved. In comparison with banks from other emerging economies in Latin America and Asia, Brazilian private banks appear less vulnerable.

A clear disappointment with the *Plano Real* has been the failure of the economy to resume growth. What accounts for this failure? The answer lies in the conduct of overall macroeconomic policies. Interest rates have remained very high – in both nominal and real terms, thus impeding recovery, investment and the resumption of growth. There are two explanations for the persistence of high interest rates. First, the public sector borrowing requirements – reflecting the failure of the Government to effectively achieve a sustainable and suitable fiscal adjustment – remain very high, thus putting upward pressure on interest rates and crowding out the private sector. Second, the pursuit of an effective nominal anchor in the exchange rate – at least until January 1999 – was an important dimension of the Government's macroeconomic policy stance. Defending the exchange rate – even under a nominally depreciating band – put enormous pressure on the monetary authorities. Consequently, interest rates had to remain high to defend the peg. This will be discussed below.

III. Institutional Arrangements

As indicated above, one of the features that distinguishes the *Plano Real* from previous, unsuccessful attempts to achieve monetary stability is the greater operating authority of Brazil's central bank. It has been granted greater independence and greater accountability for achieving monetary policy objectives. Such change over the recent years has heralded the emergence of the central bank as a much more modern institution.

Brazil has not been alone in its efforts to afford its central bank more independence and to provide greater focus for monetary policy objectives. Indeed, the change in Brazil's institutional arrangements has reflected a tendency observed internationally. One recent study reported that since 1989 some twenty-five countries have increased the legal independence and autonomy of their central banks, as opposed to very few such changes in the previous forty years.[6] This list, in addition to Brazil, includes such countries as France, Argentina, Mexico, the United Kingdom, New Zealand, Japan and Spain. Partly prompting such moves towards greater

[5] Puga (1999).

[6] Cuckierman (1998). The recent Indonesian central bank law, enacted in May 1999, adds Indonesia to that list.

independence is a growth in the evidence, both theoretical and empirical, that central bank independence promotes economic welfare and has been useful in bringing lower inflation.[7] Credibility in monetary policy, enhanced by central bank independence, can provide a nominal anchor in itself.

When the Brazilian central bank was established in 1965, the enabling legislation set up a financial system where the central bank was but one institution, with a limited role in the determination of monetary policy. It had little autonomy. In addition to the central bank, the enabling legislation established a supreme body in the form of the National Monetary Council (*Conselho Monetário Nacional*, or CMN). This body consisted of nine individuals, including the Minister of Finance (who was chairman), the President of the newly formed Central Bank, the President of the national development bank (BNDES), and six others nominated by the country's president. Among the objectives of the CMN were those to: "adjust the money supply to the necessities of the national economy and its development;" "regulate the internal value of money;" regulate the external value of money;" "orient the application of resources for financial institutions;" and assure the provision of adequate credit to a number of preferential activities, including agriculture.[8]

The role of the new Central Bank of Brazil, as the secretariat of the CMN, was to act for and carry out the decisions of the CMN in a number of functions. It was charged with the emission of money, the buying and selling of federal government securities, acting as the financial agent of the federal government, including in the issuance of debt. Its general objective was to "control the expansion of money and credit and to exercise control over interest rates for the purpose of meeting the needs of economic growth and price stability." In practice, the central bank had little real autonomy or influence. Monetary policy, which was not independently formulated by the central bank, was not focused on achieving price stability. Other questions dominated the agenda for monetary policy, and inflation was left to the befuddled and to the hand-wringers.

Given this lack of authority for monetary policies and for the central bank, coupled with high inflation, a major change took place in the form of the new constitution of 1988. The CMN was substantially eclipsed, and the charter for the central bank was drastically revised. Its new mission was defined as one of assuring the stability of the purchasing power of the national money. In carrying out this objective it was provided an exclusive role in monetary emission. Senate approval was stipulated for the Central Bank President and its Directors. In addition, and very importantly, the central bank was forbidden, for the first time, to provide loans, directly or indirectly, to the National Treasury, i.e., the federal government's main fiscal arm. These changes have sharply increased the formal, legal independence of the Central Bank of Brazil.

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[7] For a discussion of some of the empirical work, see Eijffinger and de Haan (1996). They argue: "The well-known inverse relation between central bank independence and the level of inflation is supported by most empirical studies." See also Alesina and Summers (1993) for a representative empirical analysis. For the theoretical arguments, see Cukierman (1992) and Lippi (1999).

[8] Decree Law 4595 of December 31, 1964. Prior to 1965, there was no central bank, although some functions were divided between the state owned Banco do Brasil and a government agency (SUMOC).

At the same time, central bank independence, unlike pregnancy, is not dichtomous. It is a question of degree. A great number of features comprise the independence, autonomy and accountability of a central bank. Some of these features include: (a) management of the central bank, including the way in which the chief executive officer and others are appointed, their length of term, provisions for their dismissal, the relationship of those terms to the political, i.e., electoral, cycle; provisions about outside interests, etc.: (b) the making and implementation of monetary policy, including the way in which conflicts are resolved; (c) the specification of central bank objectives; and (d) limitations on lending activities, especially to the government.

In accessing the various factors that underlie central bank independence, one author has developed a complex scoring system, which assigns scores and weights to such attributes.[9] This scoring system permits cross-country comparisons and movements over time for individual countries. Also, a distinction between legal and effective independence can also be assessed. Annex Table 1 provides a comparison of a number of countries with respect to the legal independence of their central banks during the 1980s. Brazil ranks near the bottom of the list – with a score of 0.26. With a more recent estimation, after the reforms in Brazil's legal regime for its central bank, the effective (for actual, as opposed to legal, independence) score had risen to 0.46 and 0.68, in 1990-92 and 1994-96, respectively.[10] The more recent estimates put Brazil in a range with such countries as Austria, Switzerland, Costa Rica, Denmark and Finland.

IV. The 1998-99 Currency Crisis: The Interplay of Exchange Rate and Monetary Policies

In recent years balance of payments, or currency, crises have seemingly intensified both in their intensity and frequency. This has been particularly the case with the so-called emerging countries. In the past five years major financial crises have occurred in Turkey (1994), Mexico (1994-95), Argentina (1995), Southeast Asia (1997-98, including Thailand, Malaysia, Korea, Indonesia and Philippines), Russia (1998) and Brazil (1998-99). Most of these crises, with the notable exception of Argentina during its 1995 crisis, have been characterized by substantial currency depreciation. The setting for all of these crises has been an increasingly inter-linked international economy, with growing financial and economic integration, greater openness in capital accounts following financial sector liberalization in many countries, and the larger sheer magnitude of international financial flows, which now frequently dwarf the resources that central banks can bring to muster.

The explanations for currency crises fall into two general, but interrelated, categories – those stressing the economic fundamentals (the so-called first-generation models) and those emphasizing expectations, contagion and multiple equilibria (the

[9] Cukierman (1992).

[10] Rigolon (1997).

second-generation models).[11] Much of the earlier, i.e., first-generation, literature argued that crises occur when a continuous deterioration of economic fundamentals becomes inconsistent with the maintenance of a fixed exchange rate or peg. These fundamentals can include the expansion of domestic absorption, real exchange rate appreciation, current account deterioration, adverse terms of trade shocks, monetary expansion and unsustainable fiscal policies. The second-generation models, on the other hand, raise the possibility of currency crises, or speculative attacks on a currency, in the absence of unsustainability in the economic fundamentals in a country. Crises can be self-fulfilling in nature when agents provoke a capital outflow in the expectation that the exchange rate or exchange rate regime will collapse, which in turn leads to such collapse, thus validating the negative expectations. While weak economic fundamentals may hasten or provoke a crisis, contagion, as exemplified through herding behavior, may actually bring about a crisis in the presence of "sound" economic policies and fundamentals.

In reality all of these explanations and factors may be at work in triggering a currency crisis. Indeed a combination may take place over several stages with the role of expectations taking on an increasing role in the latter stages. A first stage is characterized by the development of macroeconomic imbalance, either triggered domestically or externally. This imbalance becomes expressed, with the existence of a fixed exchange rate or a too slowly moving managed float, in the form of an overvaluated exchange rate. During a second phase, the deterioration of the macroeconomic fundamentals continues but is accompanied by the defense of the exchange rate by the central bank, frequently at the cost of substantial international reserve depletion. A third phase is ushered in with the continued depletion of reserves and finally either currency devaluation or the abandonment of a fixed rate of managed float exchange rate regime. This is frequently accompanied by panic, additional capital outflows, further pressure on the exchange rate, and financial sector debilitation. Overshooting in the market determined exchange rate is likely to occur, with an eventual correction as the economic fundamentals once again take on a pivotal role.

Where does Brazil fit? Which explanation of currency crises best explains recent developments in Brazil? First, we examine the degree to which the contagion explanation applies. The advent of the Asian economic crisis, beginning in mid-1997, was widely heralded in Brazil as having negative effects for the Brazilian economy. Certainly, the Government was quick to point to the Asian crisis for the subsequent unrest in the currency and financial markets. Possible contagion was a convenient excuse for more underlying reasons for that nervousness.

To be sure, international markets are increasingly inter-linked, through trade and financial flows. Strictly economic contagion would presumably relate to real effects stemming from trade flow disruption, terms of trade changes and any changes in financial flows directly related to the crisis area. With respect to Brazil's trade links with Asia, it can be observed that they are relatively minor in their magnitude. Brazil's total exports to Asian countries were a mere 16 percent of total exports in

[11] For a survey and an empirical application, see Esquivel and Larrain (1998). See also Krugman (1979) for an early exposition.

1997, with about 6 percent of total exports going to Japan.[12] Of the 10 percent going to other Asian counties, not all of those markets were seriously affected by the crisis (e.g., China, Taiwan). Connected with the Asian crisis, and particularly the economic downturn in Japan (but not for the US or EU, which continued to grow), there was a deterioration in a number of commodity prices. Also, there is a possibility of increased competitive pressures from the crisis impacted Asian countries, although Brazil competes in few world markets directly with Asian producers. Presumably if contagion were a factor in Brazil's exports markets, export values would have fallen in 1998. This was not the case. (Table 1) With respect to financial flows, it can be noted that there is quite limited investment from Asian countries (with the possible exception of FDI from Japan).

Even if the real side, direct effects from the Asian crisis were limited, there is still the possibility of contagion through nervousness and herding behavior in the financial markets. It is difficult, if not impossible, to sort out what is pure contagion from what is based upon, or triggered by, weak economic fundamentals. As we have seen above however, Brazil's macroeconomic fundamentals in 1997 and 1998 were increasingly weak. What was sold to the Brazilian public in 1997 and 1998 as an Asian (and later, a Russian) crisis was indeed homegrown, i.e., a Brazilian crisis, although precipitated by events abroad.

The 1997 Skitters: Warnings of Things to Come

During late 1997, amid the hype in Brazil about the Asian crisis, there was indeed nervousness in Brazil's financial markets. Between August and November 1997 the country's international reserves fell by over US$10 billion (from US$62.3 to US$51.2 billion).[13] To staunch the capital outflow (and defend the exchange rate), interest rates were raised precipitously (to an annualized of over 43 percent in November).[14] In addition, an ambitious program of fiscal adjustment was announced. The fiscal program included such measures as a number of spending cuts for the remainder of 1997 and a cutback of programmed spending for 1998. One important commitment was to move quickly on pension reform, including the effective reductions in the amounts paid to retired civil servants (who retire at one hundred percent of their salary after 30 years of labor market service irregardless of age).

As the crisis and nervousness in the currency markets abated, interest rates were brought down a bit and the fiscal program was largely forgotten – quietly abandoned after a start announced with considerable fanfare. Very few of the scheduled expenditure cuts were actually implemented. What went wrong? There are several dimensions of the failure to pursue the 1997 fiscal program. First, there had been a substantial worsening of the primary deficit in the early part of 1997, which had not been fully recognized when the program was being designed in October.

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[12] By way of comparison, Chile, with some 33 percent of its total export going to Asia, had the highest level of trade vulnerability to the Asian crisis. Data are from UNCTAD and the WTO.

[13] This loss of reserves was mirrored by a decline in the equity markets. The São Paulo stock exchange index (the Bovespa) plunged by 30 percent between July and October 1997.

[14] This is the so-called Overnight/Selic rate. It is an overnight rate for government securities and serves as the benchmark rate for the economy.

Consequently, the results for the whole year were far worse than anticipated. Secondly, state governments managed to use the resources from the privatization of their public sector enterprises to finance (and indeed expand) their expenditures. Thirdly, there was excessive optimism in the design of the 1998 budget; the working assumption for GDP growth was 4 percent (vs. the realized growth of 0.1 percent). This inflated the revenue projections used in budgetary planning. The assumptions on inflation also had similar effects. Fourth, the programmed expenditure cuts were not realized; indeed spending for 1998 was higher than that for 1997 in both nominal and real terms.[15]

With the slippage of the announced fiscal adjustment program, complacency was effectively restored and the Government's attention, certainly that of the political leadership, was focused on the October 1998 elections.[16] Those elections, as indeed to be expected, and Brazil is no exception, were costly from a fiscal viewpoint. The irony is that Brazil was blithely and unwittingly following the example and lead of Mexico during the run-up to its own currency crisis of 1994.[17]

Black September

The high interest rates and the Government's announcement of the fiscal program restored some degree of confidence, and reserves grew, reaching a high in April 1998. At that point however there began a deterioration. Towards the end of July, and following the announced Russian moratorium, the reserve loss accelerated. In the month of September 1999 the reserve loss was US$21.5 billion. (Table 7) With the receipt of some external resources from the privatization of the telephone system in early August, reserves had risen to over US$74 billion. The total loss of reserves was nearly US$30 billion in a period of six weeks until the end of September. At the same time, and once again, the equity markets plunged, with the São Paulo index falling by 38 percent between the end of July and the end of September, accompanying declines in other markets worldwide. The vulnerability is clearly reflected in the ratio of M2 to net international reserves, which reflects both the loss of reserves and the increase in highly liquid government securities. (Tables 7 and 2) Market pessimism in Brazil abounded. A number of rumors accentuated the situation and the outflow of resources. Among these – expectedly – were stories that there was discussion taking place within the Government of imposing additional exchange controls on capital flows and that there were divisions within the Government

[15] A good description is available in Giambiagi (1998).

[16] There were some reasons for Brazilian policy-makers to have been confident. The *Plano Real* had been a major success in bringing down inflation and that, coupled with important structural reforms, has gone far in restoring investor confidence. In June 1997 the Brazilian Government floated an issue of US$3 billion of unsecured thirty-year bonds in the international financial market; this loan was indeed oversubscribed. In addition, foreign direct investment (FDI) has grown continuously and dramatically since 1994. By 1998 FDI totaled US$26.5 billion, equal to 76 percent of the current account deficit, or to 3.2 percent of GDP. By way of comparison, in 1993 FDI was US$614 million; in 1997 it was US$17.9 billion. Accordingly, it is not surprising that Brazilian policy-makers viewed the current account deficit as sustainably financeable.

[17] The major parallels are the large current account deficits, similar exchange rate regimes, and the fiscal expansion accompanying elections. A noteworthy difference is that the Mexican Government purposely delayed the release of statistical information, which aggravated the situation as the crisis unfolded.

concerning the future of the exchange rate regime and the exiting crawling peg. It was rumored that powerful groups within the Government were arguing for a large devaluation. There was also a fear that a loss of access to international financial markets would make a substantial devaluation inevitable. Clearly government action was required.

Table 7
Key Variables during the Currency Crisis, 1998-99

					Inflation (IGP-DI)		*SP Stock Market* [a]	
Period	*Net Inter. Reserves (US$ bil)*	*M2/Net Inter. Reserves*	*Exchange Rate (US$/R$)*	*Interest Rate* [b] *(%)*	*12 Month Rate (%)*	*Monthly Rate (%)*	*Index*	*Monthly Change (%)*
Dec 1995	51.8	2.1	0.97	38.9	14.8	--	3,911	--
Dec 1996	60.1	2.7	1.04	23.9	9.3	--	5,922	--
Dec 1997	52.2	3.5	1.12	42.0	7.5	--	10,196	--
1998								
January	53.1	3.4	1.12	37.2	6.7	0.88	9,720	-4.7
February	58.8	3.1	1.13	34.3	6.3	0.02	10,570	8.7
March	68.6	2.8	1.14	28.3	5.3	0.23	11,946	13.0
April	74.7	2.6	1.14	25.2	4.9	-0.13	11,677	-2.3
May	72.8	2.7	1.15	22.6	4.5	0.23	9,846	-15.7
June	70.9	2.8	1.16	21.0	4.1	0.38	9,678	-1.7
July	70.2	2.9	1.16	20.3	3.6	-0.38	10,707	10.6
August	67.3	3.0	1.18	19.2	3.5	-0.17	6,472	-39.6
September	45.8	4.1	1.19	34.3	2.8	-0.02	6,592	1.9
October	42.4	4.5	1.19	41.6	2.4	-0.03	7,046	6.9
November	41.2	4.9	1.20	38.7	1.4	-0.18	8,631	22.5
December	44.6	4.7	1.21	31.2	1.7	0.98	6,784	-21.4
1999								
January	36.1	3.6	1.98	31.2	2.0	1.15	8,171	20.4
February	35.5	3.6	2.06	39.0	6.5	4.44	8,910	9.0
March	33.8	4.6	1.72	43.3	8.3	1.98	10,696	20.0
April	44.3	3.7	1.66	36.1	8.5	0.03	11,350	6.1
May	44.2	n.a.	1.72	27.9	8.3	-0.34	11,089	-2.4
June	41.4	n.a.	1.77	21.3	9.1	1.02	11,626	4.6

Notes:
a. The São Paulo stock market is reflected in the BOVESPA index.
b. The interest rate, annualized in the table, is the Overnight/Selic short term rate. A roughly comparable annualized 30 day CBD (bank CD's) rate is presented for May and June 1999.
Source: compiled from Banco Central do Brasil information and *Gazeta Mercantil* for May and June 1999.

The immediate response, as during 1997, was to raise interest rates, reversing a slow downward tendency since December 1997. By October interest rates were again in the range of some 40 percent annually. Since inflation by this point was very low, real interest rates reached comparable, extremely high rates. For the time being, fearful that a change on the exchange rate regime or rate would trigger even greater outflows and increased uncertainty and inflation, the Government decided, and

announced, that it would be sticking by the exchange rate system of a slow crawl. Thus monetary policy had to be fully mobilized to defend the exchange rate, implying very high interest rates. The pursuit of such high rates has to be viewed as appropriate only under very temporary circumstances; over more than the very short term such rates are bound to contribute to financial distress and substantial declines in economic activity.

Another Government response to the September currency crisis was the announcement of a fiscal adjustment program. This time however the support of the IMF was sought. A Fund supported program, it was thought, would calm the market and assure the continuation of international financial inflows. Indeed, the original idea of approaching the Fund, as it was initially announced, was not to draw on the Fund's resources but to have those resources available for contingency purposes. A Stand-by Arrangement was negotiated, involving substantial fiscal adjustment (Table 4), and was approved by the Fund's Board in November. The Government in fact did draw down the Fund's resources made available.

The January 1999 Speculative Attack, the Float and Ensuing Events

Despite the Government's measures taken to head off the currency crisis, it refused to go away. Notwithstanding the substantial injections of emergency support funds from the IMF and other donors, the drain on international reserves continued. (Table 7) In early January the newly elected Governor of the state of Minas Gerais declared a moratorium on that state's debt with the federal government, raising serious doubts about the Government's ability to proceed with its fiscal program and instantly precipitating a speculative attack on the *real*.[18] Government denials of an impending exchange rate adjustment became more strident,[19] and on January 12, 1999 the President of the Central Bank resigned. The band for permissible exchange rate fluctuations was then widened, leading immediately to a movement to the top of the new band, amounting to a one-day devaluation of 8.9 percent. A few days later, the band was abandoned altogether and the exchange rate was permitted to float freely, without government intervention. With that a free fall of the value of the currency began. In the period between January 12th and February 28th the nominal exchange rate had undergone a depreciation of 41 percent with most of that occurring during the first twenty days.[20] The low point was reached on March 3, 1999, when the exchange rate was US$2.16/R$ (down from US$1.21 in early January). Since then there has been some appreciation and the restoration of reasonable stability. (Table 7) The overshooting of the exchange rate seems to have been of limited duration and appears to have passed. This compares favorably with the experience of some other countries, e.g., Indonesia (where the price of the US$ shot up from Rp2,500 to over Rp16,000 at one point).

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[18] The newly elected Governor was Itamar Franco, who had been the country's President at the time that the *Plano Real* was adopted. Ironically, the statutory father of the program became its executioner.

[19] One, perhaps amusing, consequence of a system in which monetary policy is used to defend a predetermined exchange rate is that it turns Central Bank Presidents and Ministers of Finance into unabashed liars.

[20] During this period of some turmoil the replacement President of the Central Bank was forced to resign. There were three presidents within a three-week period.

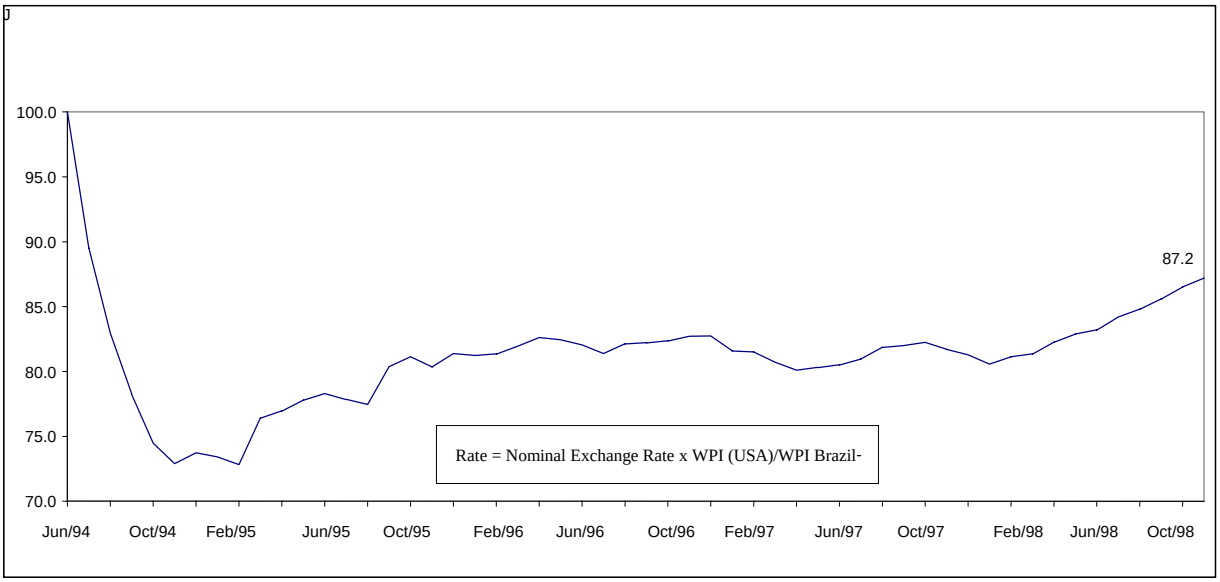
The Government clearly had demonstrated a fear in letting the exchange rate go. The exchange rate, especially initially, had served as the major nominal anchor for the *Plano Real*. There is no question that this anchor played an important role in bringing down inflation in the early days of the stabilization program. As inflation fell and inflationary inertia was overcome however, other nominal anchors of the program became more apparent, replacing the importance of the exchange rate anchor. Monetary policy has become credible (as can be witnessed in the rates of MB and M1 expansion), the continued fall in inflation has helped build confidence, and indeed the growing independence and credibility of the central bank also constitutes something of a nominal anchor.

The major drawback for using the exchange rate as a nominal anchor for a stabilization program is that currency overvaluation is likely to occur, since inflation – even with a successful program – generally drops only gradually. This then presents to governments the dilemma of how to restore competitiveness if prices are not flexible downward. This pattern indeed occurred with Brazil. There had been substantial inflationary momentum and inflation did not fall instantaneously. It fell rather gradually, as seen in Tables 1 and 2. Accordingly, there was a real appreciation of the new currency unit – the *real* – of over 25 percent during the first six months of the program. Figure 1 shows the evolution of the real exchange rate with the *Plano Real*. Following February 1995 there was some recovery, i.e., real depreciation, and then relative real stability for about two years until the end of 1997 and beginning of 1998. At that point the Government, in recognizing the need to recovery competitiveness and indeed to address the large current account deficits, adopted a somewhat accelerated crawl for the nominal exchange rate. This strategy did in fact bring about some real depreciation during 1998.

With the passage of some six months (at the time of this writing) since the exchange rate float began, one can hazard a preliminary assessment of its effects. Table 7 presents some recent data. The first evident effect is that the real currency depreciation has indeed occurred. As of the end of June 1999 – some six years after the initiation of the *Plano Real*, the real exchange rate was 23 percent depreciated in relation to where it stood at the beginning of the program. In other words, the overvaluation that occurred during the beginning of the program has been eliminated. It remains to be seen what effect this real depreciation has on the macroeconomic variables. Presumably it will help stimulate exports and economic activity.

A second effect deals with inflation. At the time of the float, it was widely argued that there would be a rebirth of inflation, given the removal of the nominal exchange rate anchor. Certainly with the depreciation, there would be an increase in the price of tradable goods. In fact, there was an increase in the monthly inflation rate; prices increased by over 4 percent in February and by 2 percent in March. (Table 7) Since then however, and given the excess capacity that exists in the economy, the inflation rate has fallen. The fears that the float would unleash inflation again in Brazil have proved to be unfounded.

Figure 1
Real Exchange Rate Index (June 1994 = 100)



Note: Using the same estimating techniques, for June 1999 the index was computed as 122.6.
Source: Giambiagi (1998)

Thirdly, the loss of foreign exchange reserves has been halted by the float of the exchange rate. Indeed in recent months there has been some rebuilding of those reserves. Related to this is the reduction of interest rates. (Table 7) The pressure of defending the exchange rate level and retaining reserves has been taken off interest rates. They have fallen and can be expected to continue to fall. Again the expected effect is to stimulate aggregate demand and the economy's recovery. However, It should be noted that the decline in interest rates continues to be constrained by the financing needs of the government.

With the reduction of interest rates and the possible restoration of confidence in the economy, there has been a resurgence in Brazil's equity markets. Between the end of January and the end of June there has been an appreciation of 42 percent (slightly more in US$ terms) in the São Paulo stock exchange index. As a reflection of a greater sense of confidence and optimism, economic forecasters have been revising their forecasts upwards. One recent business survey, concentrating on the industrial sector, shows a rather dramatic reversal of expectations and plans; some cautious optimism seems to be replacing the widespread producer pessimism that existed only a few months before.[21] In any event, the immediate economic outlook seems to have improved. The scenario that has unfolded as a result of the exchange rate float has not been as bad as many in Brazil had envisaged.

With some benefit of hindsight a question that can be asked is whether the Government's capitulation on the exchange rate came too late. Or did it come too soon? If indeed the fears on letting the exchange rate float have proved – thus far – to have been unfounded, there must have been a cost in continuing the defense of the

[21] FGV, *Conjuntura Econômica*, June 1999.

exchange rate for so long. Some costs are readily apparent in the loss of reserves. More subtle is the welfare cost stemming from the prevailing policy in the form of a loss of both GDP and potential GDP. The high interest rates necessary to defend the exchange rate resulted in both lower levels of economic activity and investment than would have been the case with lower interest rates. The same can be argued with respect to the exchange rate itself. A more depreciated exchange rate would have stimulated the economy through expenditure switching.

Alternatively, one can make the argument that the capitulation on the exchange rate was precipitous and ill advised. It can be contended that the imposition of potential exchange rate instability will have detrimental effects over the longer term. Moreover, it can be argued that the Government's strategy was basically working. A realignment of the exchange rate was taking place in 1998 through an acceleration of the crawl. At the same time, the Government was indeed making some fundamental fiscal changes and needed time, coupled with international financial support, to complete them. Accordingly, "a few more billion dollars" to support the exchange rate may not have actually been needed to weather the storm if confidence could have been restored. The problem with this line of argument deals indeed with the restoration of confidence. A "few more billion dollars" may not have been sufficient to restore confidence. In addition, those resources, as in the recent past, would have been taxpayers' resources, i.e., borrowed externally from institutions such as the IMF. And in the end, even if the speculative attack could have been weathered, would it have really been worth it? The economic fundamentals were clearly misalligned, and the exchange rate adjustment following the float has helped in restoring macroeconomic balance.

One possible concern resulting from the float is one dealing with the political economy of policy-making and reform. With the exchange rate peg the losses of reserves and the high interest rates were quite apparent to both the policy-makers and to congressmen. Accordingly, pressure for reform could be managed, particularly for the critical fiscal reforms. The Brazilian Congress enacted a number of laws embodying such reforms only under the imminent pressure of widely perceived economic catastrophe (cleverly manipulated of course by those in the Government committed to a reform agenda). With the float of the exchange rate, it would appear that some of this pressure is removed, and it may prove more difficult to articulate the prerequisite political support to enact the longer-term reforms.

With the floating of the exchange rate, one can consider the *Plano Real* phase of adjustment and stabilization as successfully completed. Keeping inflation low however will continue to be a challenge for policy-makers.

V. The Movement towards Inflation Targeting

One especially interesting development in the aftermath of the momentous float of the exchange rate in January is that the Brazilian Government, with implementation to be undertaken by the Central Bank, announced in June 1999 that it would pursue inflation targeting as a framework for the conduct of monetary policy. Under such a framework monetary policy is directed at achieving a pre-announced inflation target. The float that has made this change of policy framework possible in a

more credible fashion, since with an exchange rate peg monetary policy has to be conducted to defend that peg.

In adopting inflation targeting, Brazil joins a number of other countries that are actively pursuing such an approach to monetary policy. New Zealand was the first country to formally announce that it would pursue inflation targeting, and now the list includes such countries as Canada, Australia, the United Kingdom, Sweden, Spain, Finland and Israel. The essence of inflation targeting is that there is a central bank commitment to attaining an inflation target, and the overriding objective of monetary policy becomes meeting that target. So far only fairly advanced counties, with well-developed financial markets, have successfully adopted inflation targeting. Some prerequisites would appear to include a high degree of central bank independence, a stable macroeconomic policy framework as a starting point, at least general agreement with the Government as to what constitutes sustainability for government debt management, policy-making effectiveness in the pursuit of monetary policy, and the analytical ability to accurately forecast inflation.

With the announcement, by the Minister of Finance, that Brazil would pursue inflation targeting, a new framework for the conduct of monetary policy is implied. The role of monetary policy becomes one of achieving the indicated inflation targets. Thus far it is not clear what happens if realized inflation falls outside the target band.[22] Accountability is indeed an important part of achieving credibility. The point inflation targets for 1999, 2000 and 2001 have been announced, based upon a published consumer price index, as 8, 6 and 4 percent, with a range of 2 percent on each side. In other words, the target range for 1999 is 6-10 percent.[23]

Success in keeping inflation low in Brazil is related to the prospects for successfully implementing and pursuing inflation targeting. Whether Brazil can ultimately prove successful in adopting inflation targeting, and indeed in keeping inflation low, hinges on two questions. First, there is the lingering question as to the fiscal reforms. Without resolving the question of the structural public sector deficit and the matter of managing the large (and growing) public sector debt, the Government's macroeconomic policy stance will remain unsustainable. This puts an intolerable burden upon monetary policy if inflation is to be kept within reasonable limits beyond the short or medium term.

The second question relates to the effective independence of the Central Bank. The enabling legislation for inflation targeting has given to the CMN (National Monetary Council), in response to proposals from the Finance Ministry, the responsibility for setting the inflation targets.[24] At present the working relationship

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[22] In the case of New Zealand, the provision is for the Governor of the central bank to be dismissed if the target is not achieved.

[23] Banco Central do Brasil, *Relatório de Inflação*, June 1999. Countries pursuing inflation targeting invariably issue periodic reports on inflation and monetary policy developments as a means of communicating the inflation targets, presenting inflating forecasts and maintaining transparency.

[24] Decree No. 3,088 of June 21, 1999. Most inflation targeting arrangements reserve "goal independence", i.e.,. the setting of the inflation targets, to Government or to Parliament. In the case of Brazil, this responsibility lies entirely with Government. There is no mention of the legislative branch in either the setting of targets or the central bank's accountability.

between the Finance Ministry and the Central Bank seems to be a good one, but there is nothing to guarantee that this will always be the case in the future.[25] Despite the changes in the legislative environment (with the 1988 constitution) and favorable recent operating changes in the central bank itself, there are still questions as to just how independent the central bank really is, especially after the effective dismissal of two Central Bank presidents within a three week period.

VI. Concluding Remarks: What Lessons can be Drawn?

The many failures with price stabilization programs in Brazil prior to the successful *Plano Real* can be attributed to the failure to impose monetary discipline, redress fiscal imbalances and dismantle comprehensive and pervasive indexation. The so-called "heterodox" programs, based upon price freezes and controls, all collapsed within relative short periods of time. The *Plano Real*, despite a reliance in the beginning on the exchange rate as a nominal anchor, was successful in curtailing inflation. It was successful primarily because it was based upon the re-imposition of monetary discipline, a dismantling of indexation, and a verbal commitment to restoring fiscal balance. Confidence was restored and inflationary expectations were severely curtailed. The nominal anchor in the exchange rate was credible because the other elements in the stabilization program were largely in place. The Achilles heel of the program has been, and remains, the underachievement of the fiscal goals, with delays in the implementation of a number of fiscal reforms.

A consequence of the fiscal imbalance has been the expansion of public sector debt. Managing this debt has imposed severe constraints both on the government budget and on the pursuit of monetary policy.

The 1997-99 currency crisis in Brazil was not the result of some sinister vagaries of international financial markets; it was home grown in its origins. Serious, and growing, macroeconomic imbalance existed at the outset of the crisis. The Government's macroeconomic policy stance, as represented by unsustainable fiscal and debt policies, was indeed correctly perceived as unsustainable by market participants and viewed as unlikely to be rectified in the near term. That perception, and not contagion or herding behavior, was the cause. Once the rush was on however, herding behavior took over and it became a stampede.

Finally, with some benefit of hindsight, it would appear that the Brazilian authorities defended the exchange rate for too long. The stability achieved by maintaining the nominal anchor with the exchange rate for too long became illusory. In view of the emergence of other nominal anchors, e.g., monetary policy, it had become unnecessary. The costs of this policy, both in terms of the loss of reserves and potential GDP, were high. Moreover, the ill effects of letting the exchange rate float have been exaggerated.

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[25] Finance Ministers are frequently unpopular worldwide, since they are charged with maintaining fiscal discipline. Brazil is certainly no exception. In recent months there have been growing political demands made by Congressional and other leaders for the dismissal of the current Minister and the adoption of more "developmentalist", i.e., populist and fiscally expansionary, policies.

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Appendix Table 1

Ranking of Central Banks by Legal Independence (during 1980s)

Country	*Index*	*Country*	*Index*
Switzerland	0.68	India	0.33
West Germany	0.66	**Indonesia**	0.32
Austria	0.58	Britain	0.31
Egypt	0.53	Zambia	0.31
Greece	0.51	Australia	0.31
United States	0.51	South Africa	0.30
Chile	0.49	China	0.29
Tanzania	0.48	Romania	0.29
Ethiopia	0.47	Ghana	0.28
Denmark	0.47	France	0.28
Canada	0.46	Western Samoa	0.28
Bahamas	0.45	Sweden	0.27
Malta	0.45	Singapore	0.27
Kenya	0.44	Finland	0.27
Argentina	0.44	New Zealand	0.27
Turkey	0.44	Thailand	0.26
Peru	0.43	**Brazil**	0.26
Israel	0.42	Nepal	0.25
Costa Rica	0.42	Bolivia	0.25
Netherlands	0.42	Hungary	0.24
Fhilippines	0.42	Zimbabwe	0.23
Nicaragua	0.42	South Korea	0.23
Honduras	0.41	Italy	0.22
Zaire	0.41	Uruguay	0.22
Barbados	0.40	Spain	0.21
Ireland	0.39	Pakistan	0.19
Venezuela	0.37	Belgium	0.19
Uganda	0.37	Qatar	0.18
Luxembourg	0.37	Morocco	0.16
Botswana	0.36	Japan	0.16
Iceland	0.36	Panama	0.16
Mexico	0.36	Norway	0.14
Malaysia	0.34	Yugoslavia	0.13
Nigeria	0.33	Poland	0.10

Source: Cukierman (1992).